

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A method for performing allocation of channelisation codes to channels in a Code Division Multiple Access (CDMA) system having the channelisation codes organised in a primary code tree and zero or more secondary code trees, where each of the code trees has zero or more alternative code trees, each code tree having one or more channelisation codes per spreading factor, where the channelisation codes are, according to their position in the code tree, denoted consecutively by a code index with a lowest to a highest value per spreading factor within each code tree, and where the system deploys any combination of channels which may operate in a first Compressed Mode (CPM) type requiring reallocation of channels to a channelisation code with a lower spreading factor, and channels according to a second CPM type, which do not require reallocation, the method comprising: ~~characterised in that~~

allocating a channelisation code with a lowest code index out of a group of free channelisation codes for a certain spreading factor to the channel according to the first Compressed Mode type; and ~~is allocated a channelisation code with a lowest code index out of a group of free channelisation codes for a certain spreading factor, and~~

allocating a channelisation code with a highest code index out of the group of free channelisation codes for the certain spreading factor to a channel according to the second Compressed Mode type ~~is allocated a channelisation code with a highest code index out of the group of free channelisation codes for a certain spreading factor.~~

2. (Currently Amended) The method according to claim 1 wherein a request for allocation of a channelisation code for a channel includes ~~encloses~~ the type of CPM to be deployed.

3. (Original) The method according to claim 1, wherein the group of free channelisation codes for a certain spreading factor comprises channelisation codes from the primary code tree.

4. (Currently Amended) The method according to claim 3, wherein the group of free channelisation codes for a certain spreading factor also comprises ~~comprise~~ channelisation codes from one or more secondary code trees.

5. (Currently Amended) The method according to claim 4 ~~claims 3 or 4~~, wherein the group of free channelisation codes for a certain spreading factor also comprise channelisation codes from one or more alternative code trees, each of the one or more alternative code trees being related to said primary or the one or more secondary code trees ~~tree~~.

6. (Currently Amended) The method according to claim 5, wherein selection of a channelisation code from the group of free channelisation codes for a certain spreading factor from the primary code tree has precedence over a channelisation code from each of the one or more alternative code trees, where the one or more alternative code trees are ~~alternative code tree~~ is related to the primary code tree.

7. (Currently Amended) The method according to claim 6 ~~claims 5 or 6~~, wherein the selection of a channelisation code from the group of free channelisation codes for a certain spreading factor from the one or more alternative code trees ~~alternative code tree~~, where the one or more alternative code trees are ~~alternative code tree~~ is related to the primary code tree, has precedence over a channelisation code from the secondary code tree.

8. (Currently Amended) The method according to claim 5 ~~claims 5, 6 or 7~~, wherein selection of a channelisation code from the group of free channelisation codes for a certain spreading factor from the secondary code tree, has precedence over a

channelisation code from an alternative code tree₁ [[.]] where the alternative code tree is related to the secondary code tree.

9. (Currently Amended) The method according to claim 3 ~~claims 3 to 8~~, wherein the group of free channelisation codes do not include channelisation codes that are reserved.

10. (Currently Amended) The method according to claim 1 where the reallocation of a channelisation code is ~~an occasion~~ limited in time duration.

11. (Currently Amended) The method according to claim 1 ~~any of the preceding claims~~, further comprising the steps of:

- determining the type of CPM of the channel which is to be allocated a channelisation code;
- selecting a channelisation code from the group of free channelisation codes with a lowest code index, hence starting from the left side of the primary code tree for allocating a channelisation code for a channel according to the first Compressed Mode type ;
- selecting a channelisation code from the group of free channelisation codes with a highest code index, hence starting from the right side of the primary code tree for allocating a channelisation code for a channel according to the second Compressed Mode type.

12. (Currently Amended) The method according to claim 1 ~~claims 1 to 10~~, for wherein allocating a channelisation code to a channel according to a first CPM type comprises ~~comprising~~ the steps of:

- creating a list of candidate channelisation codes in the primary code tree which are free and not reserved;
- excluding from the list a candidate channelisation code, having a corresponding parent code at the associated alternative code tree which is not free;

- selecting and allocating a candidate channelisation code from the list with a lowest code index, hence from the left side of the code tree, on the primary code tree, if more than one candidate channelisation code exists in the primary code tree;

- reallocating a channel according to the second Compressed Mode type from the primary code tree to an alternative code tree if there is no candidate channelisation code on the list, and allocating the freed channelisation code to the channel according to the first CPM type ;

- allocating a channelisation code from a new secondary code tree if insufficient free space is created through reallocation of channels according to the second CPM type.

13. (Currently Amended) The method according to claim 1 ~~claims 1 to 10~~, for wherein allocating a channelisation code to a channel according to the second CPM type comprises ~~comprising~~ the steps of :

- creating a list of candidate channelisation codes in the primary (or secondary) code tree which are free and not reserved ;

- selecting and allocating a channelisation code from the list with a highest code index, hence from the right side of the code tree, on the primary (or secondary) code tree, if more than one candidate exists in the primary (or secondary) code tree;

- creating a first alternative list, if no candidate channelisation code at the primary (or secondary) code tree exists, with candidate channelisation codes at a right side alternative code tree related to the primary (or secondary) code tree, which channelisation codes must be free and not reserved and with the restriction that the same channelisation code at the related primary (or secondary) code tree must be used by a channel according to the second CPM type;

- selecting and allocating the candidate channelisation code with the highest code index from said first alternative list if more than one candidate channelisation code exists;

- creating a second alternative list with candidate channelisation codes at a left alternative code tree, which alternative code is related to said primary code tree, if no candidate channelisation code at the right alternative code tree exists, which

channelisation codes must be free and not reserved and the same channelisation code at the primary code tree must be used by a channel according to the second CPM type;

- selecting and allocating the candidate channelisation code with the highest code index from said second alternative list if more than one candidate channelisation code exists;

- allocating a channelisation code from a new secondary code tree if no candidate channelisation code at the left alternative code tree exists.

14. (Currently Amended) The method according to claim 11 ~~claims 11, 12 or 13~~, wherein

the steps of allocating a channelisation code to a channel according to the second CPM type are executed on the primary code tree or the secondary code tree and

the steps of allocating a channelisation code to a channel according to a first CPM type are executed on the primary code tree or the secondary code tree.

~~where the steps are deployed on, and related to, the primary code tree or the secondary code tree.~~

15. (Currently Amended) The method according to claim 1 ~~any of the preceding claims~~ wherein the first CPM type is a Spreading Factor divide by 2 (SF/2) method, and the second CPM type is a Higher level scheduling (HLS) or puncturing method.

16. (Currently Amended) The method according to claim 1 ~~any of the preceding claims~~ wherein the CDMA system is a WCDMA system.

17. – 24. (Canceled)

25. (New) A node for performing allocation of channelisation codes to channels in a Code Division Multiple Access (CDMA) system having the channelisation codes organised in a primary code tree and zero or more secondary code trees, where each of the code trees has zero or more alternative code trees, each code tree having

one or more channelisation codes per spreading factor, where the channelisation codes are, according to their position in the code tree, denoted consecutively by a code index with a lowest to a highest value per spreading factor within each code tree, wherein the CDMA system deploys any combination of channels which may operate in a first Compressed Mode (CPM) type requiring reallocation of channels to a channelisation code with a lower spreading factor, and channels according to a second CPM type, which do not require reallocation, the node comprising:

means for allocating a channelisation code with a lowest code index out of a group of free channelisation codes for a certain spreading factor to the channel according to the first Compressed Mode type; and

means for allocating a channelisation code with a highest code index out of the group of free channelisation codes for the certain spreading factor to a channel according to the second Compressed Mode type.

26. (New) The node according to claim 1 wherein a request for allocation of a channelisation code for a channel includes the type of CPM to be deployed.

27.(New) The node according to claim 1, wherein the group of free channelisation codes for a certain spreading factor comprises channelisation codes from the primary code tree.

28.(New) The node according to claim 27, wherein the group of free channelisation codes for a certain spreading factor also comprises channelisation codes from one or more secondary code trees.

29. (New) The node according to claim 28 wherein the group of free channelisation codes for a certain spreading factor also comprise channelisation codes from one or more alternative code trees, each of the one or more alternative code trees being related to said primary or the one or more secondary code trees.

30. (New) The node according to claim 29, wherein a channelisation code selected from the group of free channelisation codes for a certain spreading factor from the primary code tree has precedence over a channelisation code from each of the one or more alternative code trees, where the one or more alternative code trees are related to the primary code tree.

31. (New) The node according to claim 30, wherein a channelisation code selected from the group of free channelisation codes for a certain spreading factor from the one or more alternative code trees, where the one or more alternative code trees are related to the primary code tree, has precedence over a channelisation code from the secondary code tree.

32. (New) The node according to claim 29, wherein a channelisation code from the group of free channelisation codes for a certain spreading factor selected from the secondary code tree, has precedence over a channelisation code from an alternative code tree, where the alternative code tree is related to the secondary code tree.

33. (New) The node according to claim 27, wherein the group of free channelisation codes do not include channelisation codes that are reserved.

34. (New) The node according to claim 25, wherein the reallocation of a channelisation code is limited in time duration.

35. (New) The node according to claim 25, further comprising means for:

- determining the type of CPM of the channel which is to be allocated a channelisation code;
- selecting a channelisation code from the group of free channelisation codes with a lowest code index, hence starting from the left side of the primary code tree for allocating a channelisation code for a channel according to the first Compressed Mode type;

- selecting a channelisation code from the group of free channelisation codes with a highest code index, hence starting from the right side of the primary code tree for allocating a channelisation code for a channel according to the second Compressed Mode type.

36. (New) The node according to claim 25 wherein means for allocating a channelisation code to a channel according to a first CPM type comprises means for:

- creating a list of candidate channelisation codes in the primary code tree which are free and not reserved;
- excluding from the list a candidate channelisation code, having a corresponding parent code at the associated alternative code tree which is not free;
- selecting and allocating a candidate channelisation code from the list with a lowest code index, hence from the left side of the code tree, on the primary code tree, if more than one candidate channelisation code exists in the primary code tree;
- reallocating a channel according to the second Compressed Mode type from the primary code tree to an alternative code tree if there is no candidate channelisation code on the list, and allocating the freed channelisation code to the channel according to the first CPM type ;
- allocating a channelisation code from a new secondary code tree if insufficient free space is created through reallocation of channels according to the second CPM type.

37. (New) The node according to claim 25 wherein means for allocating a channelisation code to a channel according to the second CPM type comprises means for:

- creating a list of candidate channelisation codes in the primary (or secondary) code tree which are free and not reserved ;
- selecting and allocating a channelisation code from the list with a highest code index, hence from the right side of the code tree, on the primary (or secondary) code tree, if more than one candidate exists in the primary (or secondary) code tree;

- creating a first alternative list, if no candidate channelisation code at the primary (or secondary) code tree exists, with candidate channelisation codes at a right side alternative code tree related to the primary (or secondary) code tree, which channelisation codes must be free and not reserved and with the restriction that the same channelisation code at the related primary (or secondary) code tree must be used by a channel according to the second CPM type;

- selecting and allocating the candidate channelisation code with the highest code index from said first alternative list if more than one candidate channelisation code exists;

- creating a second alternative list with candidate channelisation codes at a left alternative code tree, which alternative code is related to said primary code tree, if no candidate channelisation code at the right alternative code tree exists, which channelisation codes must be free and not reserved and the same channelisation code at the primary code tree must be used by a channel according to the second CPM type;

- selecting and allocating the candidate channelisation code with the highest code index from said second alternative list if more than one candidate channelisation code exists; and

means for allocating a channelisation code from a new secondary code tree if no candidate channelisation code at the left alternative code tree exists.

38. (New) The node according to claim 35, wherein
the means for allocating a channelisation code to a channel according to the second CPM type utilize the primary code tree or the secondary code tree and
the means for allocating a channelisation code to a channel according to the first CPM type utilize the primary code tree or the secondary code tree.

39. (New) The node according to claim 25 wherein the first CPM type is a Spreading Factor divide by 2 (SF/2) method, and the second CPM type is a Higher level scheduling (HLS) or puncturing method.

40. (New) The node according to claim 25 wherein the CDMA system is a WCDMA system.